

CITY OF VANCOUVER
MEMORANDUM

From: CITY CLERK

Date: 30th January 1981

To: VANCOUVER CITY COUNCIL

Refer File: 5556

Subject: AUTOMATIC vs CONVENTIONAL L.R.T.

Council on January 13, 1981, having heard delegations, deferred approval of the recommendations of the City Manager in his report dated January 19, 1981 to the February 3rd, 1981 meeting of Council.

Attached is a copy of a Manager's Report dated January 29, 1981 in which this report requests Council to consider the following recommendations:

- A. The City support the GVRD Transportation Committee in its willingness to be a partner in the construction of an ALRT system from Vancouver to New Westminster provided that Senior Governments cover the cost difference and performance guarantees are obtained.
- B. The City urge the GVRD for immediate discussions with senior Governments to obtain the extra funding and guarantees required.
- C. The City urge the GVRD to proceed with the right-of-way acquisition program as rapidly as possible. For most sections of the alignment, the needs are common for ALRT and CLRT.
- D. An early deadline be set for receipt of Senior Government guarantees as to extra cost and performance so that the final decision to proceed can be made in time for completion by 1986.
- E. Preliminary design (including community impact assessment and design treatment) proceed for those areas of the alignment which are modified by the ALRT proposal or where some uncertainty exists as to the final vertical or horizontal alignment. This design process would include meetings with impacted communities. In Vancouver, this would include the sections along Commercial Drive and the entire Central Park right-of-way to Boundary Road.
- F. Concurrent with the above, discussions should proceed on the construction organization and responsibilities in order to ensure early implementation of an ALRT system. Various matters such as turnkey responsibilities, local consultant content, local manufacturing responsibilities, etc. should be resolved. In addition, the preliminary operating plan should be developed in order to provide an opportunity for public understanding of the automatic operations.
- G. Final design (construction plans and specifications) proceed on those sections where the alignment has been accepted, and where the design is not affected materially by the ALRT/CLRT decision.

Concerning the "accepted alignment" in the downtown area, Council is asked to choose between:

H. (recommended by the City Engineer for reasons set out above)

That the accepted Vancouver alignment include the use of the Dunsmuir Tunnel,

or

I. (recommended by the Director of Planning)

That the Director of Planning and the City Engineer investigate the various alignments proposed in the downtown area, and report back within one month on their relative costs and benefits.

The Director of Planning further recommends:

J. That the Director of Planning and the City Engineer, after discussions with other involved authorities, report back on the most appropriate organization and procedure to assure expeditious implementation of an LRT system, including

- 1) consultation with people affected by the alignment and station locations
- 2) preparation of Local Area Plans for affected areas of the City, consistent with the City's goals
- 3) appropriate roles for the City in all the implementation procedures.

In addition, a copy of the Manager's Report dated January 19, 1981, previously before Council, and a memorandum from the Director of Planning dated January 21, 1981 are attached as background information.

CITY CLERK

GBarden:mfm
Att.

DATE January 29, 1981.

TO: VANCOUVER CITY COUNCIL

SUBJECT: AUTOMATIC vs. CONVENTIONAL L.R.T.

CLASSIFICATION: CONSIDERATION AND RECOMMENDATION

The City Engineer reports as follows:

Background

At the GVRD meeting on January 27, 1981, the Directors deferred a decision on the Transportation Committee's recommendations concerning Automatic Light Rapid Transit. This deferral was made at the request of the Vancouver City Council in order to provide time for further review and discussion on the issues. The decision is deferred until the GVRD meeting scheduled for February 11, 1981.

Council has previously received the Light Rapid Transit System Choice (Report 4). In addition, the City Manager's Report of January 18, 1981 and the GVRD's Transportation Committee's Recommendations are attached as is the memo of January 21, 1981 from the Director of Planning.

The purpose of this report is to provide further information on the issues involved in the selection of Automatic or Conventional L.R.T.

Financial Considerations

The GVRD Committee review considered two completely independent major financial implications:

- (a) the \$90M extra cost of ALRT which it feels should be covered by Senior Government
- (b) the revenue derived from gasoline tax which it feels should be adjusted by the Province to reflect inflation, whether or not LRT is implemented.

Assuming that the only sources of revenue are fares (35% only), electric surcharge, gasoline tax and property tax, the following are the approximate effects at completion of the first Priority line LRT system in 1985-86.

COSTS IN \$ 1980

Buses only	- \$8M shortfall
CLRT or ALRT (\$90M granted)	- \$17M shortfall
ALRT (\$90M not granted)	- \$23M shortfall

this shortfall would be on a total total cost of \$140M to \$190M. If the 3¢ gasoline tax were changed to a 3½ tax then the shortfall would be reduced by about \$9M in each case. It is important to note that the matter of 3¢ vs. 3½ gasoline tax is independent of whether LRT is built or not. At this time shortfalls are expected to be covered from property tax but other sources such as higher fares or greater gasoline tax are possible.

The effect on fares of introducing LRT is estimated by the GVRD to be:

- (a) present average fare (includes passes & seniors) = 45¢
 - (b) with CLRT or ALRT (\$90M grant) = 60¢
 - (c) with ALRT (no \$90M grant) = 66¢
- all costs and fares in \$ 1980.

Comments of the Director of Planning

"The construction of an adequate LRT system in Vancouver is urgent. It appears that we are in the last round of commentary before a commitment is made to the system to be employed in Vancouver. It also seems that the Federal and Provincial Governments are committed to the ALRT system. The GVRD has a recommendation from its Transportation Committee to become a willing partner in the construction of that ALRT system. The City Engineer is recommending the immediate start on construction plans and specifications for the new Downtown alignment, and preliminary design of the remaining portion of the first leg of the system.

My concerns about the ALRT system remain as outlined in the attached memorandum to Council dated January 21, 1981. It is impractical to believe that those concerns may affect the decisions to proceed with ALRT. It may be practical, however, to express the following aspirations:-

1. That the implementation of the system involves more than just working out the design, explaining it to "impacted communities" and proceeding with construction. It is desirable to work with the communities affected by the system, to allow people to contribute to the decision making process that leads to the plans that will guide change in those areas. It should be acknowledged that those plans may describe a variety of opportunities ranging between preservation and protection, to redevelopment and the creation of new centres of activity and movement patterns. In the case of Downtown, there are unique opportunities to connect the stations through developments and public spaces to the surface. This will involve planning and complex urban design.
2. That the City obtain information that will enable it to consider the preferred alignment through the Downtown bearing in mind that it is unclear how the system will connect to the Richmond line (also urgently needed) or how it will serve the existing and developing centres in the core.

I do not agree with the recommendations supporting ALRT. However, I am not submitting alternative recommendations for the reasons noted above. I believe the engineers' recommendations about the design process are premature. It is necessary to the city with GVRD and UTA and the Province to clarify what role each will play in the planning and design process as who will pay for the various steps in that process.

The Downtown Alignment

The GVRD report is premised on the downtown alignment being the Dunsmuir Tunnel. This is different from the route chosen for conventional LRT originally. However, the UTDC, UTA and most recent GVRD studies all accept this new alignment. The City Engineer supports consideration H below, because very preliminary studies show:

1. similar patronage
2. costs are less
3. less disruption to downtown during construction
4. it provides equivalent levels of service
5. Richmond line can be tied-in in the future.

Further studies of the downtown alignment might be desirable but the City Engineer believes such studies would lead to the same conclusions reached by UTDC, UTA & GVRD - i.e. to use the Dunsmuir Route. More detailed studies than now exist would take some time and result in delay.

Summary of Issues

There are many pros and cons for the ALRT and CLRT systems in the reports previously submitted to Council. These can be summarized into the following major conclusions:

The City Engineer believes that either an Automatic or a Conventional system can meet the basic transportation needs in the New Westminster corridor. Each system provides adequate capacity at suitable levels of service to attract significant ridership in this corridor. There are, however, two major areas of concern with ALRT which are:

1. Increased capital costs of about \$90M over CLRT which are primarily due to the elimination of all at grade crossings at the time service is initiated. This results in superior service immediately in terms of safety, speed and frequency.
2. Greater risks associated with the implementation of a new system.

Each of these concerns is addressed in the GVRD recommendations and the City Manager's report by requesting Senior Government capital grants to cover the \$90M cost difference and performance guarantees to cover the risk.

Automatic LRT also requires increased use of aerial structure and the matter of automated operation requires further public discussion. These issues should be resolvable in time to meet project deadlines if a decision is made to proceed soon.

A major advantage of ALRT is that it takes advantage of the momentum associated with Transpo 86. It is a suitable demonstration project which encourages all levels of Government to finalize arrangements so that ALRT can be constructed on time. Such momentum was significant in achieving an LRT system in Edmonton and is similarly important in Vancouver.

Action Required Now

The above issues are very important but it is even more important to recognize that the GVRD Transportation Committee's recommendations are a negotiating position with Senior Government. If the conditions, which the GVRD Committee has set out, are met then the differences between ALRT and CLRT are very much reduced to the point where the systems are approximately equal. If the conditions are not met by the Senior Governments, if the cost differences are not granted and if the performance guarantees are not made then there is a case for continuing with the Conventional system in spite of the Transpo momentum which would be lost. The critical next step is that the GVRD approach the Senior Government with its conditions and determine whether they will be accepted. This is what the recommendations of the GVRD Transportation Committee attempt to achieve. It is the City Engineer's opinion that the City should support the GVRD in this important quest for assurance from the Senior Governments on its major concerns. Further detailed debate on technicalities will only serve to delay this important step which must be taken before any final decision can be made.

There are certain design works and right-of-way acquisitions which can be proceeding immediately and concurrent with the negotiations since these will have to be carried out regardless of which system is chosen. No further time should be lost in proceeding with these.

Some of the GVRD Committee recommendations are severe and Council may wish to ask the GVRD to adjust them in the interest of obtaining quick agreement between the GVRD and the Province.

Recommendations

The City Engineer recommends that:

- A. The City support the GVRD Transportation Committee in its willingness to be a partner in the construction of an ALRT system from Vancouver to New Westminster provided that Senior Governments cover the cost difference and performance guarantees are obtained.
- B. The City urge the GVRD for immediate discussions with senior Governments to obtain the extra funding and guarantees required.
- C. The City urge the GVRD to proceed with the right-of-way acquisition program as rapidly as possible. For most sections of the alignment, the needs are common for ALRT and CLRT.
- D. An early deadline be set for receipt of Senior Government guarantees as to extra cost and performance so that the final decision to proceed can be made in time for completion by 1986.
- E. Preliminary design (including community impact assessment and design treatment) proceed for those areas of the alignment which are modified by the ALRT proposal or where some uncertainty exists as to the final vertical or horizontal alignment. This design process would include meetings with impacted communities. In Vancouver, this would include the sections along Commercial Drive and the entire Central Park right-of-way to Boundary Road.
- F. Concurrent with the above, discussions should proceed on the construction organization and responsibilities in order to ensure early implementation of an ALRT system. Various matters such as turnkey responsibilities, local consultant content, local manufacturing responsibilities, etc. should be resolved. In addition, the preliminary operating plan should be developed in order to provide an opportunity for public understanding of the automatic operations.

- G. Final design (construction plans and specifications) proceed on those sections where the alignment has been accepted, and where the design is not affected materially by the ALRT/CLRT decision.

Concerning the "accepted alignment" in the downtown area, Council is asked to choose between:

- H. (recommended by the City Engineer for reasons set out above)

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The Director of Planning further recommends:

- J. That the Director of Planning and the City Engineer, after discussions with other involved authorities, report back on the most appropriate organization and procedure to assure expeditious implementation of an LRT system, including

- 1) consultation with people affected by the alignment and station locations
- 2) preparation of Local Area Plans for affected areas of the City, consistent with the City's goals
- 3) appropriate roles for the City in all the implementation procedures.

The City Manager submits the choice between H and I for Council's CONSIDERATION, and RECOMMENDS approval of the remaining recommendations.

AUTOMATED SYSTEMS IN OPERATION OR UNDER CONSTRUCTION

SYSTEM	LENGTH	STATIONS	CAPACITY PERSONS/HR (PEAK)	MAXIMUM SYSTEM SPEED	HEADWAY	STATUS	DEGREE OF SUPERVISION
Morgantown/West Virginia	14.1 km	5	3600	48 km/hr	15 seconds	In operation	No drivers or attendants.
Lille, France	12.7 km	17	7000 to 20000	to 80 km/hr	60 seconds	Near completion	No drivers or attendants.
Kobe, Japan	6.5 km	9	to 13500	60 km/hr	2 minutes	Near completion or completed	No driver; attendant initially.
Osaka, Japan	6.9 km	8	6000 to 13500	60 km/hr	2 minutes	Near completion or completed	No driver. Attendants initially; later unattended.
Dallas/Fort Worth Airport	21.5 km	53	to 9000	48 km/hr	50 seconds	In operation	No drivers or attendants.
Other Airport Systems - Atlanta, Miami, Orlando, etc.	3 km typical	6 typical	7000 + up	48 km/hr	70 seconds	In operation	No drivers or attendants.

U/B 2(i)

MANAGER'S REPORT

DATE January 19, 1981.

TO: Vancouver City Council

SUBJECT: AUTOMATIC vs CONVENTIONAL LRT - GVRD REPORT

CLASSIFICATION: Recommendation

The City Engineer reports as follows:

Background

The GVRD previously approved the development of a Light Rapid Transit System for the Lower Mainland and budgeted funds for the acquisition of right-of-way and detailed engineering. The selected system based on earlier studies was Conventional Light Rapid Transit (CLRT).

With the Provincial announcement of Transpo '86, an opportunity developed for the application of a transit demonstration project which displayed Canadian Technology and provided a potential for senior level of government funding. On this basis, the Ontario owned Urban Transportation Development Corporation (UTDC) made a proposal to install an Automatic Light Rapid Transit (ALRT) system in the region. This system has been selected by the Urban Transit Authority although several conditions were attached related to performance and cost guarantees.

In November of last year, several officials of the City, GVRD and Province viewed the ALRT test track in Kingston, Ontario. At that time it was decided that the GVRD should undertake a further study comparing CLRT versus ALRT technology and its application for the Lower Mainland. The primary emphasis of this study was to develop good cost estimates for the application of ALRT for the first priority LRT line. These cost estimates were needed to reconcile a number of different estimates that were available at the time and to determine the scale of capital funding needs.

The GVRD study is complete and along with a series of recommendations will be considered by the Board of Directors meeting tentatively scheduled for January 27th. The GVRD study recommends the acceptance of Automatic LRT subject to a number of technical, organizational and financial conditions. These recommendations are attached.

The purpose of this report is to present the City staff conclusions relative to the ALRT-CLRT issue and to recommend actions for proceeding with construction of an LRT system.

Automatic LRT Advantages and Disadvantages

The application of the ALRT system in Vancouver will meet the basic travel demands within the first priority corridor to New Westminster with branches to Surrey and the Lougheed Mall. However, when compared to a more conventional system, there are differences which can be reviewed in the context of positives and negatives.

Positives of ALRT

- The ALRT system is an application of innovative technology which would be suitable for TRANSPO '86.
- As a demonstration project for TRANSPO '86 it builds upon the momentum of the exhibition leading to an early implementation date, senior government funding and a potential for world wide export of a Canadian developed system.
- The operation provides for better service through reduced travel time (GVRD estimate 2 - 6 minutes) and reduced waiting times at stations.
- The system is more flexible in providing service to major attractions such as those which will occur in the downtown stadium, festivals, pre-Christmas shopping, etc.
- With automatic control, ALRT is cheaper to operate.

- The ALRT design provides grade separation from street crossings which improves safety and minimizes disruption to vehicular traffic. Grade separation will likely be required in the future for conventional systems anyway.

Negatives of ALRT

- The ALRT system costs more to build primarily due to the need for structures to provide grade separation. The GVRD estimate is \$90M. extra although this difference may be reduced somewhat through redesign.
- With the application of new technology in revenue service, there are greater risks associated with meeting the performance specifications.
- The increased use of aerial structure will result in greater community impacts although these impacts can be reduced by design treatment. In Vancouver most of the added aerial sections are located in industrial areas, with the exception of portions of Commercial Drive/Victoria Diversion in the vicinity of the Slocan/29th/Earles and at Joyce Street. Further design work is required in the section between Victoria Diversion and Nanaimo Street to assess the trade-off between aerial sections or at grade sections with closure of local roads.
- The use of fully automated vehicles and no vehicle drivers and attendants will require acceptance on the part of the public. This has been achieved in several other cities.

Conclusions

Various people will evaluate the advantages and disadvantages of ALRT-CLRT differently. In the City Engineer's opinion the advantages and disadvantages balance each other so that in the end both systems are acceptable and approximately equal - with two important exceptions. These exceptions are:

1. Cost difference between ALRT and CLRT which the GVRD study estimated at \$90 M (1980 dollars).
2. The higher risk resulting from the use of ALRT technology which is less proven than CLRT.

With regard to the higher cost, it appears that the Federal and Provincial Governments can make this up through grants to the system. The Federal Government has a fund of over \$30 M. for this purpose and additional funds are likely. The province has set aside over \$50 M. for Rapid Transit. The GVRD has agreed to ALRT if the senior governments make up this difference.

With regard to the higher risk, the Urban Transit Development Corporation (UTDC) is prepared to guarantee no cost overruns provided it is given full authority over certain aspects of the project. This is being referred to as turnkey authority. The GVRD recommendations are to accept this arrangement provided detailed specifications are made which are acceptable to the GVRD. In addition, the Ontario Provincial Government has passed legislation which will back-up these assurances of performance by UTDC.

The greater lengths of aerial structure and the matter of automated operation will require further public discussion. These should be resolvable in time to meet project deadlines.

Through the above means the critical, negative aspects of ALRT can be overcome and under these conditions the ALRT system would be acceptable and economical.

One other important consideration is the momentum that has been built-up for ALRT. It is our opinion that the association with Transpo is very important because:

1. Transpo requires a demonstration project and ALRT can be considered an appropriate demonstration project because it is innovative; CLRT is not.
2. A deadline exists for Transpo and this will encourage all levels of government to finalize arrangements so that the ALRT can be constructed in time.

Should the opportunity to have the LRT system constructed in time for Transpo pass, it is probable that senior government interest in the project will be lost (certainly that of the Federal Government) and we may be faced with many more years of study and debate before we get an LRT system. The City of Vancouver needs an LRT system now,

and this association presents a once-in-a-lifetime opportunity to expedite matters. The reason Edmonton obtained its LRT system so rapidly was that it had to meet the Commonwealth Games deadline.

Recommendations

In view of the attached GVRD Committee recommendations and the above City consideration I recommend that:

1. The City support the GVRD in its willingness to be a partner in the construction of an ALRT system from Vancouver to New Westminster provided that senior governments cover the cost difference and performance guarantees are obtained.
2. The City press for immediate discussions with senior Governments to obtain the extra funding and guarantees required.
3. The City press the GVRD to proceed with the right-of-way acquisition program as rapidly as possible. For most sections of the alignment, the needs are common for ALRT and CLRT.
4. An early deadline be set for receipt of senior Government guarantees as to extra cost and performance so that the final decision to proceed can be made in time for completion by 1986.
5. In the meantime, the design of the ALRT system should proceed immediately in the following two phases:
 - (a) Final design (construction plans and specifications) on those sections of the alignment which are accepted and impacted minimally by the ALRT/CLRT decision. In Vancouver, this would include the downtown alignment utilizing the Dunsmuir tunnel, through B.C. Place to Main Street, Terminal Avenue and the Grandview Cut to Broadway.
 - (b) Preliminary design, including community impact assessment and design treatment, for those areas of the alignment which are modified by the ALRT proposal or some uncertainty exists as to the final vertical or horizontal alignment. This design process would include meetings with impacted communities. In Vancouver, this would include the sections along Commercial Drive and the entire Central Park right-of-way to Boundary Road.
6. Concurrent with the above, discussions should proceed on the construction, organization and responsibilities in order to ensure early implementation of an ALRT system. Various matters such as turnkey responsibilities, local consultant content, local manufacturing responsibilities, etc. should be resolved. In addition, the preliminary operating plan should be developed in order to provide an opportunity for public understanding of the automatic operations.

The City Manager RECOMMENDS approval of the foregoing recommendations of the City Engineer.



Greater Vancouver Regional District

2204 WEST TENTH AVENUE VANCOUVER BRITISH COLUMBIA V6K 2H9 TELEPHONE 731-1155

Please refer to our file number

January 20, 1981

WHEREAS:

- 1) Conventional LRT can adequately serve Greater Vancouver's Transit needs in the foreseeable future at lower cost.
- 2) The B.C. Government has decided to build an Automated LRT for Transpo '86 and to create a B.C. Transit Industry.
- 3) Automated LRT can potentially offer better service to Greater Vancouver residents, even though it costs more.

THEREFORE, YOUR COMMITTEE RECOMMENDS TO THE BOARD:

- 1) That the Board advise the Minister of Municipal Affairs it is a willing partner to build Automated LRT subject to the following conditions:
 - a) The B.C. Government should make a firm commitment to have the first regional LRT line (approved by the GVRD Board) in service by the mid-1980's between Downtown Vancouver and New Westminister, including branches to Surrey and the Lougheed Mall.
 - b) Guideways and stations for LRT must be built to carry standard LRT cars or ICTS vehicles.
 - c) The system is guaranteed to operate with un-manned trains.
 - d) There are firm performance guarantees for LRT vehicles and subsystems based on detailed specifications that are acceptable to the GVRD. Vehicles and sub-systems will be tendered.
 - e) The roles of the B.C. Government, the UTA, the GVRD and the Ontario UTDC are as follows:

B.C. GOVERNMENT

- o Hosts Transpo '86
- o Develops B.C. Transit Industry
- o Contributes Share of Transit Costs Through Urban Transit Authority
- o Secures Senior Government Funding

URBAN TRANSIT AUTHORITY

- o Exercises Financial Review and Budget Approval For the Project
- o Owns LRT Stations, Tracks and Cars



Greater Vancouver Regional District

2204 WEST TENTH AVENUE VANCOUVER BRITISH COLUMBIA V6K 2H9 TELEPHONE 731-1155

January 20, 1981

Please refer to our file number

GREATER VANCOUVER REGIONAL DISTRICT WITH MEMBER MUNICIPALITIES

- o Prepare LRT Engineering Designs And Specifications for Suppliers
- o Assemble Land for LRT Rights-of-way on Behalf of UTA
- o Is Responsible For Construction of LRT Stations and Tracks
- o Fits LRT and Bus Service together as integrated system
- o Pays Local Share of LRT and Bus Costs
- o Collects All LRT Revenues
- o Coordinate Local Works

LRT SUPPLIER

- o Deliver LRT Vehicles, Train Control, Power Systems and Other Hardware According to Specification
 - o Bond Their Performance
 - o May Construct LRT Stations and Guideway to Greater Vancouver Specifications, If design and price are FULLY Guaranteed
 - o Trains LRT Personnel
- 2) That the Board agree to continue the current cost sharing formula beyond the 1984 - 85 expiration of the current Transit Service Agreement to cover the long term financing of LRT, provided that:
- a) Construction of Automated LRT must be preceded by a firm commitment by the B.C. Government to pay the difference in capital cost between Automated and Conventional LRT as a direct payment toward construction outside the cost sharing formula. (estimated difference \$90 million 1980 dollars)
 - b) The B.C. Government pays for the Downtown People Mover part of the Automated System within B.C. Place between the Granville Bridge and the Georgia Viaduct.
 - c) The B.C. Government agrees to pay any operating costs that result from the System not meeting its performance guarantees.
 - d) Revenues from Air-rights-development and all other revenues from LRT are System Revenues that accrue to the GVRD transit system; Air rights and station development are according to local planning.



Greater Vancouver Regional District

2204 WEST TENTH AVENUE VANCOUVER, BRITISH COLUMBIA V6K 2H2 TELEPHONE 731-1155

Please refer to our file number

January 20, 1981

- e) LRT Construction will be exempt from provincial sales tax in a similar manner to GVRD hospital construction.
 - f) "Cost of living" adjustments will be made to current GVRD transit tax sources.
3. The Board should advise the UTA that the GVRD is continuing to do detailed LRT engineering and is proceeding with a land assembly program for LRT rights-of-way pursuant to its responsibilities under the current TSA, while awaiting a response.

U/B 2(ii)

City of Vancouver



Inter-Office Correspondence

CITY PLANNING DEPARTMENT

1981 01 21

MEMORANDUM

TO: Mayor M. Harcourt and Aldermen

CC: F. K. Bowers, City Manager
W. H. Curtis, City Engineer
P. D. Leckie, Director of Finance
M. Beck, Director of Social Planning

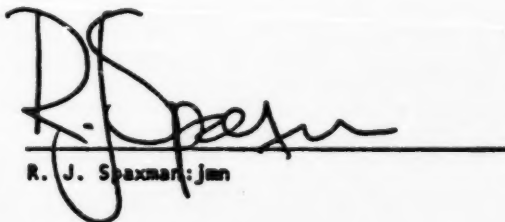
FROM: R. J. Spaxman, Director of Planning

SUBJECT: ALRT/CLRT

I am attaching a copy of the notes which I followed when addressing Council on January 20th on this matter.

Because I did not receive a copy of the Engineer's report until Tuesday afternoon, and received a copy of the G.V.R.D. report after I had addressed Council yesterday, it was not possible for me to prepare and submit a written report for the Council agenda.

I do understand the severe time constraints which the Engineer also had to face in getting his report out.

A handwritten signature in dark ink, appearing to read 'R. J. Spaxman', written over a horizontal line.

R. J. Spaxman:jmn

Attachment.

City of Vancouver



Inter-Office Correspondence

CITY PLANNING DEPARTMENT

1981 01 20

NOTES FOR DIRECTOR OF PLANNING COMMENTS ON CLRT/ALRT -
JANUARY 20, 1981

1. The choice of a rapid transit system is a very important Planning decision - It is easily among the most important Planning decisions Council will ever have to make.

It will have enormous impact on the future of this City.

As with most Planning decisions, the most immediate apparent impact will be physical. It will radically change the way we get around the City and Region and thence, eventually, the shape or urban form of the place - perhaps to a form radically different than we have today.

As with most Planning decisions, the impact will not be limited to the physical. There will be immense financial, economic, and social consequences.

As well -

2. Your Director of Planning is charged with advising you on these Planning consequences - ALL these consequences.

I find this most difficult as I have just this afternoon received for the first time the Engineer's report with the Manager's recommendation. I only last night received a summary of the G.V.R.D.'s recommendations, and I have yet to see the G.V.R.D.'s full report.

3. Under the circumstances, the best I can do is draw upon a November 1980 memorandum which I wrote to the Mayor and Manager. In that memorandum I raised a number of issues or questions about the ALRT/CLRT choice. Please allow me to raise these issues with you and evaluate the extent to which the material before you this evening helps resolve them. You, of course, have the responsibility of deciding whether the issues I raise are important ones and whether you have sufficient information before you tonight to make a decision about these issues and about a choice of technology. Many of the issues may be resolved in the G.V.R.D.'s report - but I don't know.

My memorandum notes the following:

"In these times when so many decisions seem to be being made about so many important subjects, it is challenging to wonder if there is anything one can offer to the "decision takers" to help them in that difficult task.

Senior Planning staff met recently to wonder about the latest round of decision taking about an LRT system for Vancouver and thought it might be helpful if we passed the following on to you.

We compared the proposed Automated Light Rapid Transit system from Ontario with the one we had helped to study with the GVRD last year and concluded as follows:

1. The ALRT has certain features about it which make it a much less attractive system than the conventional system."

The Engineer appears to confirm this general conclusion in his report - particularly:

- A) That ALRT will cost more.
- B) That ALRT has a higher risk.

- "2. It requires a fully protected right-of-way because its HOT RAIL can be lethal."

This appears to remain a feature of the system proposed for Vancouver. The safety aspects can be managed, of course, and have been done in other cities with comparable heavy rail technologies - but it is more costly and less flexible.

- "3. The necessary elevated parts of the system will be considered UGLY and will be opposed by the public (even though it is quieter)."

The Engineer admits this remains a problem.

- "4. Stations will be very difficult and costly to build and access for the elderly and infirm will be very difficult."

While Dr. Lee alludes to the good design of the ALRT vehicles in this respect (a characteristic shared by most CLRT vehicles) - the issue of costly and difficult elevated station design is not addressed in the Engineer's report.

- "5. While these things may not appear to be too problematic in the first leg to New Westminster, future additional lines (for example, south and west to Richmond) will be more contentious, more difficult."

The possibility of an elevated system on an Arbutus or even Cambie alignment has not been addressed at all. But think about it and think about the likely community opposition on the west side of the City. Note please, as well, that our

preliminary Coreplan analysis indicates that a second LRT branch to Richmond may be needed well before the end of the decade to support planned Downtown development. Does the ALRT provide sufficient flexibility for expansion? - We concluded:

- "6. Hence, the ALRT will prove to be a POOR investment as it lacks the flexibility of the conventional system."

We have seen sufficient argument to sway us from this conclusion.

- "7. We are skeptical about the claims that it costs about the same as the CLRT. The system, with its many structural requirements, appears to be a more costly proposition."

The Engineer's report appears to confirm this - and this cost is likely to be even more significant in future expansions - the cost of which will likely have to be borne entirely by local government.

- "8. The public will demand security observation on the train thus obviating the apparent labour-saving claims of driverless automated systems."

The Lee letter suggests this worry as well. The Engineer suggests that automated operation has been achieved in other cities - but I know of no North American example of comparable system length where fully automated operation has been achieved. The best known attempt is, of course, the Bart system in San Francisco. That system was designed to be automated but they have had to install human attendants.

- "9. While it may be attractive to have a SHINY NEW SYSTEM FOR TRANSP0 - there are enough unresolved issues to suggest that it might be a demonstration of failure if it was pushed into service by 1986."

This observation still stands in contrast to the Engineer's positive observation about the relationship between Transpo and ALRT.

- "10. The claim that we might get \$100 Mil off the price is misleading. What, in fact, is proposed, is that all Canadians will share in the cost of that \$100 Mil instead of just B.C. residents - and - It is very likely that other Provinces will claim an equal share of Federal dollars, thus, in the end, costing us all the same anyway."

The financial formula keeps changing. It now appears that even with Federal and Provincial cost-sharing ALRT will cost the region more, as the Engineer indicates \$80 Million in senior government money to apply to the \$90 Million difference between ALRT and CLRT. ALRT does not appear to be a bargain even if you assume erroneously that senior government grants are costless to the Vancouver taxpayer.

- "11. It is also claimed that the system, if successful, would create jobs for Canadians and earn export dollars. It should be noted that the conventional system could also be built in Canada and create jobs."

There is no new information that I am aware of on this question.

- "12. We note that the conventional system is tried and tested and in successful operation and is under production. We know it works. The ALRT might turn out to be a lemon."

The Engineer acknowledges this risk but suggests it can be handled through a turnkey contract. That contract, unless drawn very, very carefully, also involves some risks - particularly in getting the system we want - compatible with community needs and desires.

- "13. Finally, we wish to bring to your attention our considerable concern about current proposals about the alignment of the Downtown sections. While noting how expedient the Dunsmuir tunnel appears to be, it does not relate to the functional needs of the Downtown, nor to the desirable extensions of the system to the south. The alignment costs should be compared with the functional benefits or disbenefits of other alignments. This, to our knowledge, has not occurred. We believe LRT is the most urgent of all the projects being debated at this time."

The Engineer's report assumes the Dunsmuir tunnel without justification.

I do not wish to raise these issues to delay a decision on LRT. Indeed I believe the LRT decision has already been delayed by the very poor intergovernmental decision-making apparatus we have operating in this Province.

Preliminary data from our Coreplan work suggests that given the current momentum of development interest in Downtown - even with both legs of LRT operating - our transportation system will be overcapacity shortly after 1990 - so congestion is going to increase intolerably - both with LRT and without (though perhaps slightly less intolerably with it). So we need to get on with LRT and more (perhaps we even have to control growth to allow us to get ahead).

It appears that the Province is intent upon making a decision. It looks as if the GVRD might support that with strong conditions attached. The City is being recommended to support the ALRT too by the Manager and City Engineer.

I believe there are some very important questions to be addressed before you have clear information to base your decision upon.

You will have to decide how you wish to consider these questions.

Concluding comments.

DISTRIBUTED TO

Inter-Office Correspondence

REFERS TO

U/E 2
.....

CITY MANAGER'S OFFICE

February 3, 1981

MEMO TO: Members of Council
FROM: F. K. Bowers, City Manager
SUBJECT: Report U/B 2 on Automatic vs. Conventional LRT

RECEIVED
FEB 11 1981
Reference to

Page one of the Manager's Report contains a section on "Financial Considerations" which could benefit from some further explanation.

The attached page was prepared by the Director of Finance, but is based on cost estimates of the GVRD staff.

The "shortfall" or "transit deficit" discussed in the report and in the attached page is based on the following assumption:

- annual transit budget includes operating costs plus amortization of net capital costs
- fares pay for 35% of transit budget
- the remaining 65% of the budget are shared, Province 2/3 - Region 1/3
- the Regional share is primarily paid in the form of a gas tax plus a Hydro surcharge
- if these two regional revenues are not sufficient to pay for the Regional share, any remainder becomes a "shortfall" or "transit deficit", which has to be paid out of property taxes.

The attached page shows the incidence of such property taxes under two assumptions and for three scenarios:

Assumption I - Gas Tax is limited to 3¢ per gallon, as in present legislation, - Hydro surcharge as in Assumption II

Assumption II - Gas Tax limit is increased to 3¢, as requested by the GVRD, - Hydro surcharge to produce same total revenue as 3¢ Gas Tax.

Scenario A: No LRT is built. Instead, over the next five years, extra buses are put into service to cope with the demand.

Scenario B: An LRT line is built by 1985-86, and its net capital cost is to be amortized. Fewer new buses are needed. The line could be either a conventional LRT line, or an automated LRT line with a senior government grant which reduces its net capital cost to the same value as conventional LRT.

Scenario C: Automated LRT, but without the requested senior government grant.

Fritz Bowers

DEFICIT SHORTFALL EFFECT ON TOTAL REAL PROPERTY TAXES
IN VANCOUVER, AND AVERAGE SINGLE FAMILY RESIDENCE(SFR)

1980 \$

I ASSUME 3¢ GAS TAX

	<u>BUSES ONLY</u>	<u>CLRT OR ALRT (with \$90 m grant)</u>	<u>ALRT (no \$90 m grant)</u>
	<u>A</u>	<u>B</u>	<u>C</u>
1. Transit deficit	\$ 8m	\$17m	\$23m
2. Vancouver taxpayers share(37.5%)	3m	6.4m	8.6m
3. Deficit as a percentage of 1980 total property taxes in Vancouver	1.4%	3.0%	4.0%
4. Increase in taxes on average SFR in Vancouver	\$13.70	\$29.20	\$39.30
5. As a percentage increase in gross total taxes on average SFR	1.4%	2.9%	3.9%

II ASSUME 3% GAS TAX

1. Transit deficit	0	\$ 8m	\$14m
2. Vancouver taxpayers share(37.5%)		\$ 3m	\$ 5.3
3. Deficit as a percentage of 1980 total property taxes	0	1.4%	2.5%
4. Increase in taxes on average SFR	0	\$13.70	\$24.20
5. As a percentage increase in gross total taxes on average SFR	0	1.4%	2.4%

81-016

UNFINISHED BUSINESS (cont'd)

2. Automatic vs. Conventional L.R.T. (cont'd)

At this point in the proceedings, Council resumed consideration of and debate on the various documents before it on this matter.

MOVED by Ald. Puil,

THAT the following recommendations contained in the City Manager's report of January 29, 1981, be approved:

- A. The City support the GVRD Transportation Committee in its willingness to be a partner in the construction of an ALRT system from Vancouver to New Westminster provided that Senior Governments cover the cost difference and performance guarantees are obtained.
- B. The City urge the GVRD for immediate discussion with senior Governments to obtain the extra funding and guarantees required.
- C. The City urge the GVRD to proceed with the right-of-way acquisition program as rapidly as possible. For most sections of the alignment, the needs are common for ALRT and CLRT.
- D. An early deadline be set for receipt of Senior Government guarantees as to extra cost and performance so that the final decision to proceed can be made in time for completion by 1986.
- E. Preliminary design (including community impact assessment and design treatment) proceed for those areas of the alignment which are modified by the ALRT proposal or where some uncertainty exists as to the final vertical or horizontal alignment. This design process would include meetings with impacted communities. In Vancouver, this would include the sections along Commercial Drive and the entire Central Park right-of-way to Boundary Road.
- F. Concurrent with the above, discussions should proceed on the construction organization and responsibilities in order to ensure early implementation of an ALRT system. Various matters such as turnkey responsibilities, local consultant content, local manufacturing responsibilities, etc., should be resolved. In addition, the preliminary operating plan should be developed in order to provide an opportunity for public understanding of the automatic operations.
- G. Final design (construction plans and specifications) proceed on those sections where the alignment has been accepted, and where the design is not affected materially by the ALRT/CLRT decision.

- CARRIED)

(Ald. Eriksen, Rankin and Yorke opposed and the Mayor opposed to recommendations A and F).

MOVED by Ald. Puil,

THAT the accepted Vancouver alignment include the use of the Dunsmuir Tunnel.

- CARRIED UNANIMOUSLY

UNFINISHED BUSINESS (cont'd)

2. Automatic vs. Conventional L.R.T. (cont'd)

✓ MOVED by Ald. Ford,

THAT the following recommendation contained in the City Manager's report of January 29, 1981, be approved:

J. That the Director of Planning and the City Engineer, after discussions with other involved authorities, report back on the most appropriate organization and procedure to assure expeditious implementation of an LRT system, including

- 1) consultation with people affected by the alignments and station locations
- 2) preparation of Local Area Plans for affected areas of the City, consistent with the City's goals
- 3) appropriate roles for the City in all the implementation procedures.

- CARRIED

(Ald. Eriksen, Rankin and Yorke opposed).

MOVED by Ald. Brown,

THAT Council advise the GVRD that an element of Vancouver's acceptance of LRT is that the Provincial Government be urged to accept the 3% gas tax.

- CARRIED UNANIMOUSLY

MOVED by Ald. Yorke,

THAT Council recommend to the GVRD that the capital costs of an LRT system be borne by the senior levels of government and that any right-of-way profits accrue to the municipality.

- deferred

MOVED by Ald. Puil,

THAT the above motion be referred to the Financial Task Force for consideration.

- CARRIED UNANIMOUSLY

COMMUNICATIONS

✓ 1. Use of City-owned Open Land for Housing

Council noted a letter, dated January 28, 1981, from the Chairman of the Park Board expressing the concern of the Board at a newspaper report that City-owned vacant land is to be used for housing. The Board requested it be involved in the planning process for use of City-owned land.

MOVED by Ald. Bellamy:

THAT the letter from the Chairman of the Park Board, dated January 28, 1981, be received for information.

- CARRIED UNANIMOUSLY